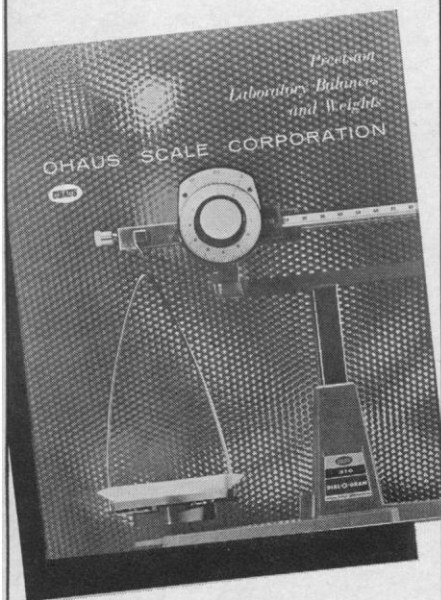


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blood and blood-forming organs." The mean age at death of dentists dying from neoplasms was 67.5, compared to 66.3 for nondentists. These figures are for white males, and are age-adjusted to take into account age differences in the populations at risk (the number of living dentists 25 and older, and white male population 25 and older). No death occurring at age less than 25 was included for either dentists or nondentists, so Medwedeff's assertion that "virtually no dentists are under 20" is irrelevant and misleading.

Death from cancer was studied also in an earlier investigation conducted by the Bureau of Economic Research and Statistics, *Mortality of Dentists, 1951-1954*. The mean age at death caused by neoplasms was 67.7 for white male dentists 25 and older, and 65.2 for white male nondentists 25 and older. In this study, too, the difference in age distribution of the populations at risk was taken into account.

Therefore, over a period of 10 years, dentists dying from neoplasms were older than the comparable general population group dying from neoplasms.

In a national survey of dentists conducted by the Bureau in 1950, 92.4 percent reported having x-ray equipment in their offices. This would indicate that x-ray machines have been in wide use in dentistry for considerably longer than 20 years as indicated by Medwedeff. Certainly earlier equipment and procedures caused greater dentist exposure than current usage.

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Symbols and Symbolic Codes

The recent issue of *Science* (13 Oct.) was distressing for one interested in the development of symbols and symbolic codes for diagrams.

The new symbol for "biohazards" (1) was chosen on the basis of two criteria, one of which was "uniqueness," interpreted as lack of prior meaningful associations. A good deal of research has indicated that symbols capitalizing on appropriate prior associations and meaningful stimulus structure are often superior to arbitrary "signs" (2). When new symbols utilize arbitrary stimuli, it is not uncommon for lapses of meaning to occur, even with trained persons. Although the symbol chosen for biohazards may become meaningful for

persons engaged in constant work on such projects, it would not seem to provide any strong avoidance associations for nonlaboratory personnel who might come across such materials accidentally. I cannot help wondering why previously learned avoidance meanings were not considered (apparently). Offhand, one might think a skull and crossed test tubes would convey the desired meaning to both laboratory and lay persons better than the symbol chosen.

Second, Walsh's article was marred by a map (p. 243) which violated rather well-established principles of "S-R compatibility" (3) and standard coding techniques. Looking at the map, one would think that Massachusetts, Maryland, New York, Pennsylvania, and Texas received the lion's share. The confusion obligations. Only in reading the fine print does one discover that California received the lions' share. The confusion is compounded by the fact that up until the final division, increased shading is more or less correlated with increased funding.

Whether one is dealing with a life-and-death matter (biohazards) or simply with graphic communication, it is unfortunate that both research findings and common sense are overlooked in the development of so many symbolic displays.

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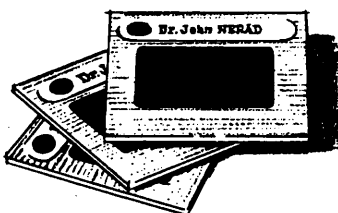
Reactions from Reed

Nelson's provocative and interesting article on Reed College (15 Sept., p. 1282) provided me with somewhat mixed emotions; one cannot help but cringe upon seeing one's beloved so exposed to public examination. In general, his facts seem to be both accurate and clearly presented, though somewhat more pessimistically interpreted than we feel is representative of our view. However, three points I believe should be clarified:

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with 

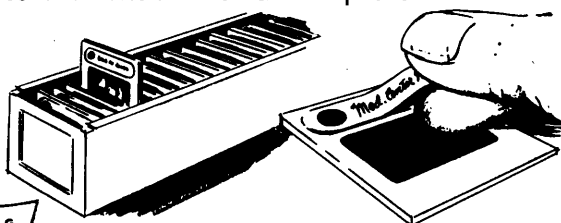


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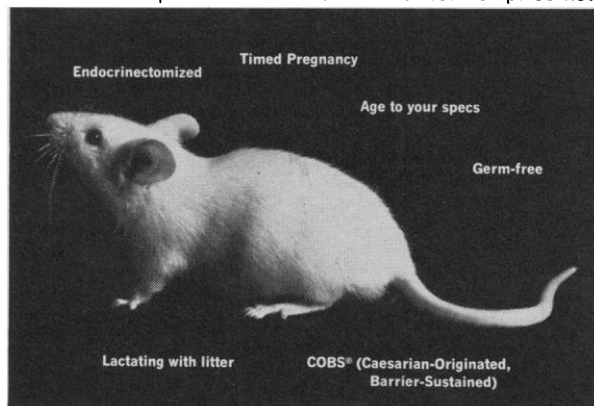
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cide rate as well as the frequent seeking out of medical help to combat fatigue and despair." We have for many years taken pride in the high degree of confidence which exists between our students and the deans of students. The deans are thus in a position to know a great deal about student life and problems, and can give maximum counsel, recommending medical or psychological advice as required. Contrary to student myth, we have had *no* suicides on campus during the 11 years that I know personally at Reed, and only one by a registered student—at home during the summer.

2) "One of the things that worries some Reed educators is the fact that 40 percent of those who drop out never receive a B.A. from any institution." This figure is a complete mystery to us. Our self-study report of 1960 indicates that approximately 80 percent of Reed's dropouts continue their education at other institutions, and indeed that almost 50 percent of them are back in college within 1 year of leaving Reed.

3) "So far, three presidential prospects have turned down firm offers from Reed." In fact, *no* firm offers have been made! That is not the way we play the game. We have invited a number of prospects to campus for closer acquaintance, have become very interested in two of these, but both have decided for rather personal reasons to discontinue the courtship. One felt quite personally involved in administrative commitments involving a number of other people at his own institution whom he did not wish to ditch; the other was an active scholar who still had several books to get off his chest before going into administration.

BYRON L. YOUTZ

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I wish to disclaim the statement "a large part of the college sneers at big-time research." If these words were used by me (which I doubt) they were certainly taken out of the context of their purported use. However, I do find shocking, particularly in an intellectual environment, *any* antipathy toward scholarly endeavors.

The unqualified "great preoccupation [of the biologists] with research" may have carried the implication that teaching is a secondary or ancillary concern of ours; this would be an unfortunate and mistaken construction. I made clear in our interview that the

biology department considers research a most important adjunct to teaching. In rapidly moving and shifting fields, such as biology, research activities provide insurance that the teacher will maintain an awareness of current developments in his field and bring this awareness to his classroom. Thus, our "preoccupation" with research has an extension beyond its intrinsic justification.

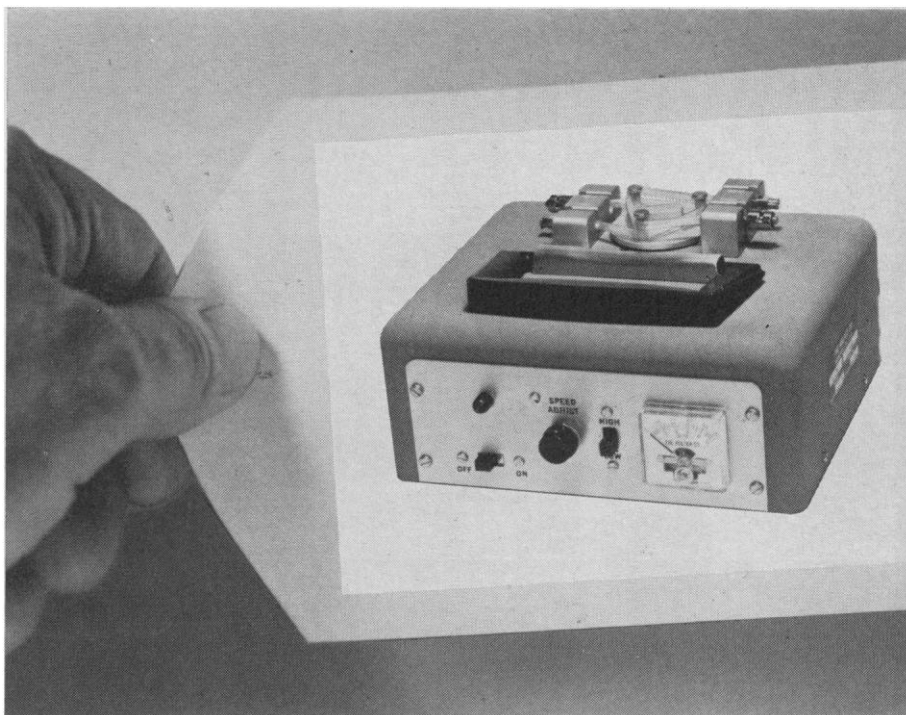
In his seeming preoccupation with the flamboyant, Nelson neglected the more substantive aspects of our interview. Omitted was an account of the integration of our students into the scholarly activities of the biology department, through direct participation in faculty research, independent projects, and thesis work. This learning by doing with its one-to-one student-faculty relationship is a basic aspect of our educational philosophy, and I suppose it takes some "preoccupation" with research to provide a real environment in which this philosophy can materialize. Also omitted was an account of the recent inception of a postdoctoral program, which has as a primary aim the development of teacher-scholars. This program provides new Ph.D.'s with an opportunity to examine and develop their proclivities toward teaching and to make progress as active scientists. A "preoccupation" with research makes a postdoctoral effort of this sort feasible. Thus, we are strongly committed to research, we are deeply involved in teaching, and we believe the two efforts are crucially complementary.

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As one of the "smug" and "arrogant" traditionalists referred to in Nelson's article on Reed College (15 Sept., p. 1282) I am surprised to find that a liberal arts college needs a Mission. I have been naive and innocent enough to believe that it is the function of a liberal arts college to bring together a faculty and student body with a mutual concern for learning. The faculty ought to be the most able which can be lured with nothing more than promises of hard work and low salary, and the students should regard learning as their major reason for being in a college. Nelson's article tells me that, in addition to library and laboratory facilities appropriate to this joint enterprise of faculty and students, we now need a Mission.

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selves committed to, and actively engaged in, learning (as scholars, writers or researchers) and if they are also committed to transmitting what they are continually learning to these students who actually desire to learn, I can see no reason for imposing on this relationship a Mission.

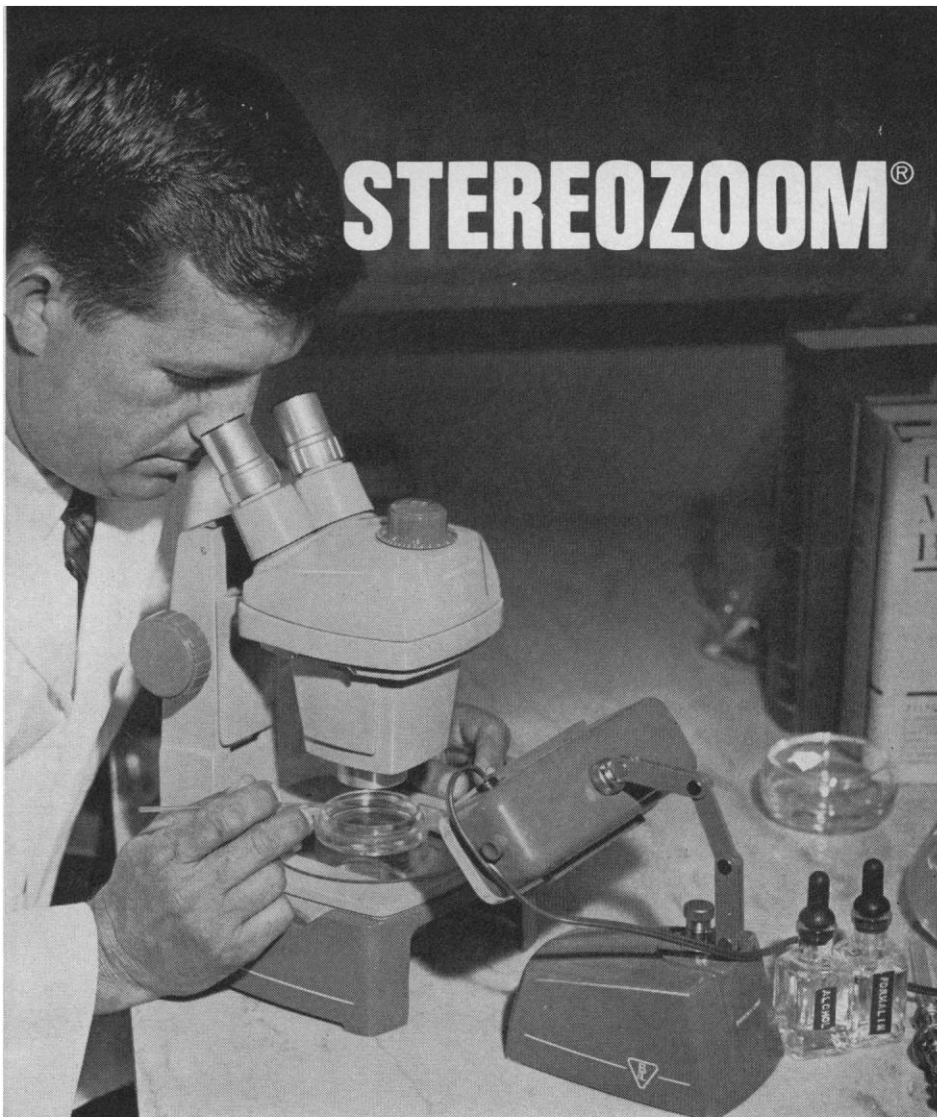
It is apparent that Nelson was infected by the myth makers. For example, those characteristics of a college community which lead the uninformed to conclude that an institution is "a bastion of Bohemian appearance and left-wing thought" have long since become such common characteristics of every major college or university in the country as to be hardly worth a comment. A number of points were missed. For example, the \$400,000 to \$500,000 yearly fundraising effort is just a bit more than the direct financial aid given by the college to its students. In proportion to the size of the endowment and the yearly operating budget, I would guess that this is one of the highest student financial aid budgets in the country.

If the dropout problem is to be considered a serious one, the comparison with Swarthmore omitted vital information. Reed gambles on many more doubtful admissions than Swarthmore, as a comparison of applicants to admissions for the two schools indicates. Not all of these gambles disclose the jewel in the rough stone; however, enough do to make a good argument for the vice of gambling.

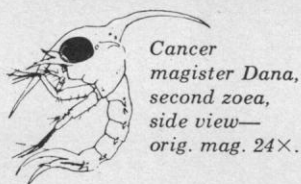
About my colleague's lugubrious predictions of an early demise for liberal arts colleges (Reed in particular) unless something is done, I can only say that they also represent an ancient and conservative point of view shared with such famous figures as Professor Burgess of Columbia (1884); President Harper of Chicago (1900), "Three out of four colleges must be reduced to academies or modified into junior colleges"; President Butler of Columbia, "If the American college is to be saved it must reduce its course of study to two or three years"; David Starr Jordan of Stanford (1903), "As time goes on the college will disappear, in fact, if not in name. The best will become universities, the others will return to their place as academies" [F. Rudolph, *The American College and University—A History* (Vintage Books, New York, 1965), p. 443].

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